

### **Abstract**

The present invention relates to copolymers for applications in medicine and biotechnology and preparation thereof. Copolymers comprises polyvalent *N*-Acetyl Glucosamine(NAG) in polyvalent form and bind more efficiently to lysozyme than  
5 NAG itself. The copolymers exhibit effective inhibition even at very low ligand concentrations. The copolymers could be used for prevention and treatment of bacterial and viral infections. Moreover, these copolymers form are stimuli sensitive polymers and can be used for the recovery of biomolecules. The methodology can be extended to other ligands such as sialic acid and used for preventing influenza and / or rotavirus  
10 infections. It also provides a method for the synthesis of copolymers wherein polymers comprising sequences of specific ligands are required.